

**SOUTHWEST POWER POOL**  
ECONOMIC STUDIES WORKING GROUP & TRANSMISSION WORKING GROUP JOINT  
MEETING

February 18, 2022  
Net Conference

## **SUMMARY OF MOTIONS AND ACTION ITEMS**

- **Endorsed the data submitted for inclusion into the 2021 ITP BR and MEM models,** understanding the final updated 2021 ITP BR and MEM models will be approved separately at a later date the agenda

**SOUTHWEST POWER POOL**  
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## MINUTES

### AGENDA ITEM 1 – ADMINISTRATIVE ITEMS

Economic Studies Working Group (ESWG) Chair Alan Myers called the meeting to order at 8:00 a.m. The following members were in attendance or represented by proxy:

#### ESWG

Alan Myers, ITC  
Anita Sharma, AEP  
Calvin Daniels, WFEC  
Derek Brown, Evergy  
Gayle Nansel, WAPA  
Jeremy Severson, BEPC  
Jody Holland, GHP  
Jordan Schmick, SPS  
Kurt Stradley, LES  
Kyle McKinney, GSEC  
Michael Watt, OMPA  
Randy Collier, CUS  
Steve Gaw, APA  
Steve Hohman, OPPD  
Tim Owens, NPPD  
Zac Hager, OGE

Transmission Working Group (TWG) Chair Derek Brown called the meeting to order at 8:00 a.m. The following members were in attendance or represented by proxy:

#### TWG

Joshua Verzal, OPPD (Vice Chair)  
Andrew Berg, Missouri River Energy Services

Arash Ghodsian, EDF Renewables  
Gayle Nansel, Western Area Power Administration  
James Ging, Kansas Power Pool  
Jim McAvoy, Oklahoma Municipal Power Authority  
Joe Fultz, Grand River Dam Authority  
Jarred Cooley, Xcel Energy SPS  
John Boshears, City Utilities of Springfield Missouri  
John Knofczynski, East River Electric Power Cooperative  
Kalun Kelley, Western Farmers Electric Cooperative  
Matt McGee, American Electric Power  
Michael Wegner, ITC Holdings  
Nate Morris, Liberty  
Nathan McNeil, Midwest  
Noman Williams, GridLiance  
Phil Westby, Basin Electric Power Cooperative  
Randy Lindstrom, Nebraska Public Power District  
Shane McMinn, Golden Spread Electric Cooperative  
Scott Benson, Lincoln Electric System  
Steve Hardebeck, Oklahoma Gas & Electric

(Attachment 1) (Attachment 2)

Joshua Norton and Adam Bell confirmed there was a quorum and provided the antitrust statement. Alan Myers and Derek Brown reviewed the agenda for any changes. (Attachment 3 – Agenda)

ESWG

**Jeremy Severson made a motion, seconded by Kurt Stradley to approve the agenda. The motion was approved unanimously.**

TWG

**John Knofczynski made a motion, seconded by Andrew Berg to approve the agenda. The motion was approved unanimously.**

**ESWG/TWG**

AGENDA ITEM 2 – 2021 ITP FURTHER EVALUATION

Sunny Raheem covered background and specifics of continued evaluation work. He reviewed the data that was submitted. The groups discussed the load reductions and SPS load additions.

Sunny reviewed a summary of generation updates and reviewed the model development scope. (Attachment 3)

ESWG

**Anita Sharma made a motion, seconded by Jeremy Severson to approve staff's recommendation to endorse the data submitted for inclusion into the 2021 ITP BR and MEM models, understanding the final updated 2021 ITP BR and MEM models will be approved separately at a later date the agenda. The motion was approved unanimously.**

TWG

**Josh Verzal made a motion, seconded by Jarred Cooley to approve staff's recommendation to endorse the data submitted for inclusion into the 2021 ITP BR and MEM models, understanding the final updated 2021 ITP BR and MEM models will be approved separately at a later date the agenda. The motion was approved with one vote against (Nate Morris).**

Alan Myers called for the ESWG to adjourn. The TWG continued with the rest of the agenda.

## TWG ONLY

### AGENDA ITEM 3 – GENERATION INTERCONNECTION DISPATCH METHODOLOGY

Juliano Freitas discussed the percentages in the generation source table for wind and solar. Juliano reviewed benefits of a new dispatch methodology. David Kelley underscored the urgency of resolving the issues presented. (Attachment 4)

## **ECONOMIC STUDIES WORKING GROUP MINUTES**

February 18, 2022

### AGENDA ITEM 4 – CLOSING ITEMS

There were no action items taken.

## **EMAIL ITEMS**

There were no email items since the prior meeting.

Respectfully Submitted,

Joshua Norton

ESWG Secretary

Adam Bell

TWG Secretary

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## Proxy Statements

<b>Proxy</b>	<b>Member</b>	<b>Note</b>
Edin Terzic	Scott Benson	TWG
Randy Collier	John Boshears	TWG – 10:15 a.m.
Steve Hardebeck	Zac Hager	ESWG

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Thank you Adam,

**Also I am giving my proxy to Randy Collier at 10:15 for this meeting.**

John Boshears  
Eng III-Transmission Planning

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All,

I will not be able to attend the meeting on Friday so Steve Hardebeck will have my proxy.

Thanks,

*Zac Hager*

OG&E Resource Planning

**SOUTHWEST POWER POOL, INC.  
ECONOMIC STUDIES WORKING GROUP /  
TRANSMISSION WORKING GROUP JOINT MEETING  
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**AGENDA**

Friday, 8:00a.m – 12:00p.m. (CT)

- 1. Administrative Items.....Alan Myers / Derek Brown 15
  - A. Call to Order, Introductions .....Alan Myers / Derek Brown
  - B. Receipt of Proxies ..... Joshua Norton / Adam Bell
  - C. Review of Agenda<sup>1</sup> .....Alan Myers / Derek Brown
  - D. Antitrust Reminder ..... Joshua Norton / Adam Bell

**ESWG/TWG**

- 2. 2021 ITP Further Evaluation (Approval)<sup>1</sup> ..... Sunny Raheem 2 hr

**TWG ONLY**

- 3. Generation Interconnection Dispatch Methodology<sup>1</sup> .....Juliano Freitas 2 hr
- 4. Closing Items..... All 10
  - A. Summary of Action Items
  - B. Upcoming Meeting Agenda Items

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<sup>1</sup> Background Material Included

*Antitrust: SPP strictly prohibits use of participation in SPP activities as a forum for engaging in practices or communications that violate the antitrust laws. Please avoid discussion of topics or behavior that would result in anti-competitive behavior, including but not limited to, agreements between or among competitors regarding prices, bid and offer practices, availability of service, product design, terms of sale, division of markets, allocation of customers or any other activity that might unreasonably restrain competition.*

# 2021 ITP FURTHER EVALUATION – MODELING SCOPE

CROSSROADS-PHANTOM DOUBLE CIRCUIT 345 KV PROJECT

SUNNY RAHEEM

# OBJECTIVE

- Provide stakeholders an update on data received for use in the 2021 ITP further evaluation, project status, as well as collect feedback and seek endorsement of changes to continue work on subsequent milestones
  - Data submitted via the SPP RMS as a Section 10.3 request

2021 **ITP**

# **BACKGROUND**

# BACKGROUND

- MOPC endorsed the 2021 ITP recommended plan, with the exception of approving the Crossroads-Phantom double circuit 345 kV project for construction
- MOPC also recommended further evaluation of the project, using updated information
  - Results of this evaluation will be brought back to the MOPC no later than July 2022

# SPECIFICS OF CONTINUED EVALUATION

## What it is

- Work with TWG/ESWG to update model assumptions
- Revisit needs assessment and portfolio development for SPS South target area
- Utilize existing solutions to determine best project(s)

## What it is not

- Addressing any new unique system needs
- Opportunity for a new DPP\* submission window
- Only a determination of the need for the Crossroads-Phantom project



2021 **ITP**

# **DATA SUBMISSION REVIEW**

# DATA SUBMITTED

- Summary of Load Reductions and Load Additions (AQ):
  - Incorporate load reduction resulting from forecast update
  - Station service load amount (<1MW/gen) updates for Harrington, Nichols, Tolk, and Jones generating facilities
  - Add load additions (AQ):
    - DPA-2020-Dec-1263 Red Hills (57MW)
    - DPA-2021-March-1295 Chevron Eddy (50MW)
    - DPA-2021-AUG-1358 Caveman (5MW)
    - DPA-2020-May-1206 Sisko (28.5MW)
    - DPA-2019-Oct-1126 Lynch (20MW)
- Previously anticipated AQ loads
  - DPA-2021-April-1310 EOG Loving Railyard (80MW)

# DATA SUBMITTED

- **Summary of Generation Updates**
  - Pmax updates for Harrington, Nichols, Tolk, and Jones generating facilities
  - Updated topology and firm service dispatch for Sagamore Windfarm
  - Retirement updates included
- **Summary of Other Updates**
  - Removal of Phantom static var compensator (SVC) previously utilized to converge later year models
  - Revisit modeling of in-line shunt reactors

2021 **ITP**

# **MODEL DEVELOPMENT SCOPE**

# MODEL DEVELOPMENT SCOPE

- Start with final approved 2021 ITP BR and MEM models
  - Apply submitted 10.3 data, submitted model corrections, and 2021 ITP portfolio, as appropriate to 2021 ITP BR and MEM Years 5 & 10 models
    - 26L, 26S, 26W
    - 31L, 31S, 31W
    - MEM F1 & F2
    - Potential Tolk Sensitivity Cases
  - Redispatch (generation and load changes)
  - Perform case quality assurance checks similar to normal ITP model builds
  - Evaluate impacts to Resource Plan Phase 2 and Constraint Assessment for additional modifications, as needed

# MODEL DEVELOPMENT SCHEDULE

Model Development	Deadline
Section 10.3 Submission Deadline	2/9/2022
2021 ITP Updated BR Powerflow Posted for Stakeholder review	2/18/2022
2021 ITP Updated BR Powerflow Approval (March TWG)	3/1/2022
2021 ITP Updated MEM Posted for Stakeholder review	3/10/2022
2021 ITP Updated MEM Approval (via email vote)	3/17/2022

2021 **ITP**

**NEXT STEPS**

# NEXT STEPS

- Staff to provide draft assessment schedule and scope at March TWG/ESWG meetings
- Model approvals in March



2021 **ITP**

**ENDORSEMENT**

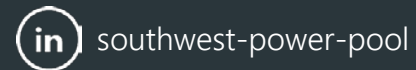
# RECOMMENDATION

Staff recommends endorsement of the data submitted for inclusion into the 2021 ITP BR and MEM models, understanding the final updated 2021 ITP BR and MEM models will be approved separately at a later date



# DISIS FUEL-BASED DISPATCH

*Working together to responsibly and economically  
keep the lights on today and in the future.*



# CURRENT DISIS DISPATCH

Model			Generator Dispatch				
Dispatch Scenario	Seasons	Code	Requested Service Type	In Group		Out Group	
				Renew.	Conv.	Renew.	Conv.
HVER	Summer, Winter, Light	01, 02, 03, 04, 05	ERIS and NRIS	100%	n/a	n/a	n/a
LVER	Summer and Winter	00	ERIS and NRIS	20%	100%	20%	100%
NR	Light	01NR, 02NR, 03NR, 04NR, 05NR	NRIS	100%	n/a	n/a	n/a
	Summer and Winter	00NR	NRIS	100%	100%	100%	100%

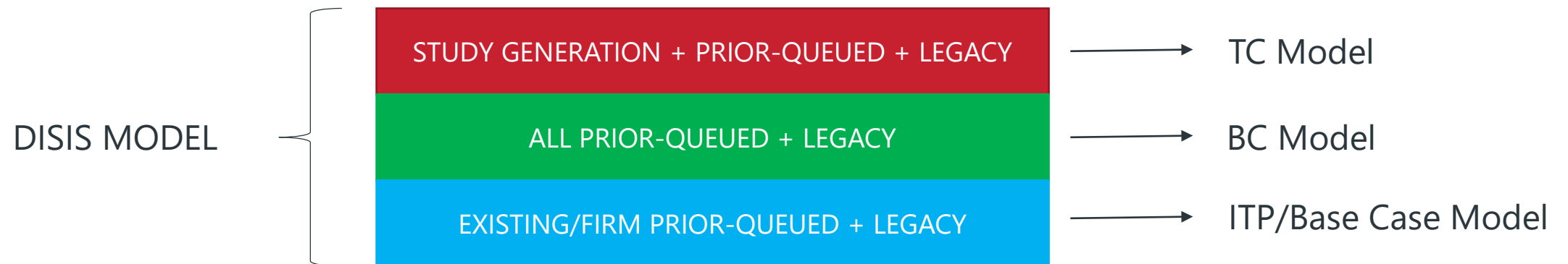
Note: N/A indicates the dispatch does not increase from ITP BR model  
 Reflects TWG approval in 2021 of ERIS resources not dispatched in NRIS models

# CHALLENGES

- Issues converging study powerflow models due to excess of generation in each group
- Increased losses and voltage issues
- High cost in upgrades to make the study cases solve/converge
- Currently, prior-queued and study renewables are dispatched at 100% (inside the group) in most of the scenarios, excluding LVER summer and winter peak

# GENERATION DEFINITIONS

- Legacy: generation that pre-dates the queue
- Prior-queued: requests that are *queued* higher than the current study (not generation that pre-dates the queue)
- Study generation: requests that are currently under evaluation



# **POWERFLOW AND STABILITY SOURCE**

# ERIS/NRIS SOURCING METHODOLOGY

## ERIS Models

ERIS + NRIS  
REQUESTS  
(Prior-  
Queued &  
Study Gen)

## NRIS Models

ONLY NRIS  
REQUESTS  
(Prior-  
Queued &  
Study Gen)

## Stability Models

ERIS + NRIS  
REQUESTS  
(Prior-  
Queued &  
Study Gen)



# GENERATION SOURCE TABLE

Fuel Type	In-Group						Out-Group					
	Summer Peak		Winter Peak		Light Load		Summer Peak		Winter Peak		Light Load	
	PQ	Study Gen	PQ	Study Gen	PQ	Study Gen	PQ	Study Gen	PQ	Study Gen	PQ	Study Gen
Combined Cycle	100%	100%	100%	100%	0%	0%	NC	0%	NC	0%	NC	0%
Combustion Turbine	100%	100%	100%	100%	0%	0%	NC	0%	NC	0%	NC	0%
Diesel Engine	100%	100%	100%	100%	0%	0%	NC	0%	NC	0%	NC	0%
Hydro	50%	50%	50%	50%	100%	100%	NC	0%	NC	0%	NC	0%
Nuclear	100%	100%	100%	100%	100%	100%	NC	0%	NC	0%	NC	0%
Storage	100%	100%	100%	100%	0%	0%	NC	0%	NC	0%	NC	0%
Coal	100%	100%	100%	100%	50%	50%	NC	0%	NC	0%	NC	0%
Oil	100%	100%	0%	0%	0%	0%	NC	0%	NC	0%	NC	0%
Waste Heat	100%	100%	100%	100%	100%	100%	NC	0%	NC	0%	NC	0%
Wind	20%	20%	20%	20%	60%	100%	NC	20%	NC	20%	NC	60%
Solar	40%	100%	10%	10%	0%	0%	NC	40%	NC	10%	NC	0%
Hybrid	See Appendix	See Appendix	See Appendix	See Appendix	See Appendix	See Appendix	See Appendix	See Appendix	See Appendix	See Appendix	See Appendix	See Appendix

Note: % with respect to interconnection service

If request's ITP dispatch is greater than DISIS dispatch table value, no change to dispatch will be made

"NC" indicates no change in dispatch from ITP model

Light load not applicable to stability model set

# BENEFITS OF THE NEW DISPATCH

- More realistic dispatch
- Reduce the amount of non-converged issues solving BC and TC powerflow models
- More consistent with MISO and PJM GI dispatches
- Increase consistency with ITP methodology
- Reduce the time to build models
- Same dispatch methodology for powerflow and stability, except stability does not have the light load season

# POWERFLOW/STABILITY SINK

# ERIS/NRIS SINKING METHODOLOGY

- Options for generators to displace
  - Legacy and prior-queued generation, with appropriate exceptions (e.g. nuclear)
  - Generation in ITP, with appropriate exceptions (e.g. nuclear)
- **ERIS**
  - Ramp down generation in the entire footprint based on load ratio share
- **NRIS**
  - If network attestation is available, applicable pricing zone.
  - Without attestation:
    - Summer and winter peak, entire footprint based on load ratio share
    - Light load: applicable group

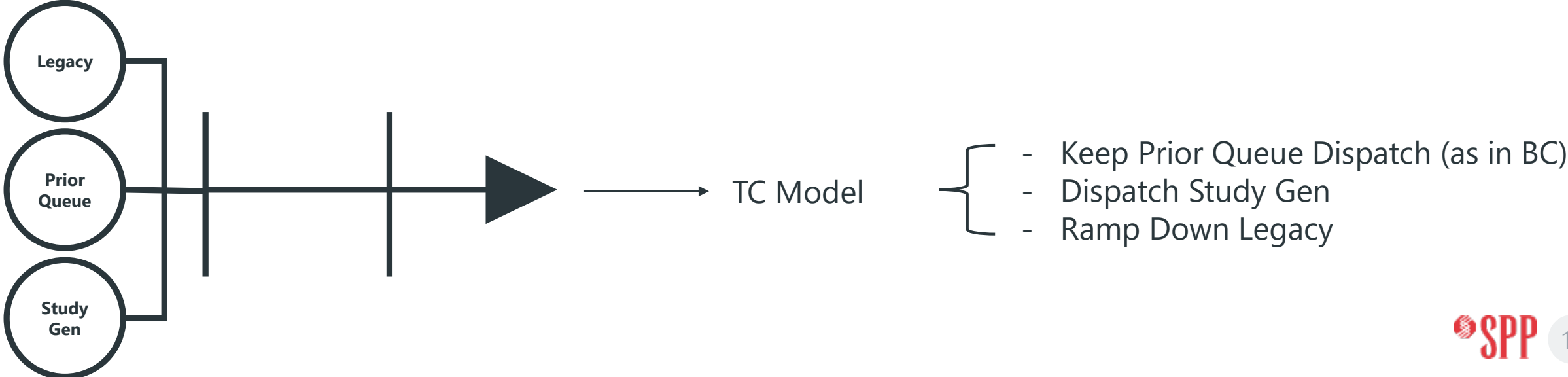
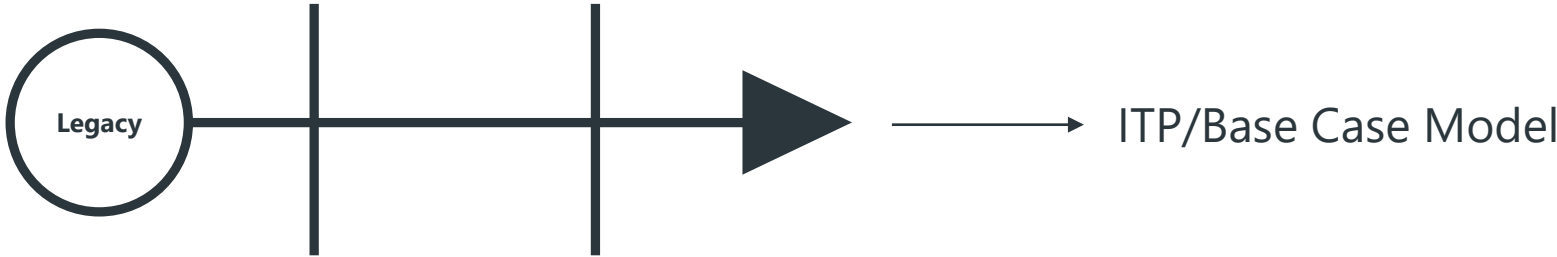
# AREA INTERCHANGE CONTROL

# ADDITIONAL DISCUSSION TOPICS

- Area Interchange Control
  - Disabled area interchange control
  - Keep the same generation for slack buses after dispatch

# APPENDIX

# DISPATCH METHODOLOGY





# AVERAGE ITP RENEWABLE DISPATCH BY SEASON

2021 ITP Base Reliability/ DISIS-2017-002 Base	Y5 SP		Y5 WP		Y5 LL	
	Wind	Solar PV	Wind	Solar PV	Wind	Solar PV
01 NORTH	19.5%	N/A	39.4%	N/A	79.7%	N/A
02 NEBRASKA	16.5%	N/A	40.3%	N/A	70.7%	N/A
03 CENTRAL	25.1%	25.3%	23.4%	12.7%	59.4%	0.0%
04 SOUTHEAST	22.4%	N/A	20.2%	N/A	66.1%	N/A
05 SOUTHWEST	13.4%	41.7%	11.4%	7.5%	41.6%	0.0%
SPP ALL - AVERAGE	18.6%	36.4%	21.7%	7.7%	56.7%	0.0%
Recommendation	20%	40%	20%	10%	60%	0%

# PRIOR-QUEUED HYBRID EXAMPLE

Hybrid Request #	Hybrid Request Capacity	Type	Installed Capacity (MW)	Summer Peak	Winter Peak	Light Load
1	100MW	Solar	50	40%*50MW= 20MW	10%*50MW= 5MW	0%*50MW= 0MW
		Wind	100	20%*100MW= 20MW	20%* 100MW= 20MW	60%* 100MW= 60MW
		<b>Total</b>	<b>150</b>	<b>40MW</b>	<b>25MW</b>	<b>60MW</b>
2	190MW	Storage	100	100%*100MW= 100MW	100%*100MW= 100MW	0%*100MW= 0MW
		Wind	200	20%*200MW= 40MW	20%*200MW= 40MW	60%*200MW= 120MW
		<b>Total</b>	<b>300</b>	<b>140MW</b>	<b>120MW</b>	<b>0MW</b>

If requested Hybrid capacity is exceeded by calculated values, dispatch will be scaled down on a pro rata basis (of calculated values) to honor requested capacity

# STUDY HYBRID EXAMPLE

Hybrid Request #	Hybrid Request Capacity	Type	Installed Capacity (MW)	Summer Peak	Winter Peak	Light Load
1	100MW	Solar	50	100%*50MW=50MW	10%*50MW=5MW	0%*50MW=0MW
		Wind	100	20%*100MW=20MW	20%*100MW=20MW	100%*100MW=100MW
		<b>Total</b>	<b>150</b>	<b>70MW</b>	<b>25MW</b>	<b>100MW</b>
2	190MW	Storage	100	100%*100MW=100MW	100%*100MW=100MW	0%*100MW=0MW → 0MW
		Wind	200	20%*200MW=40MW	20%*200MW=40MW	100%*200MW=200MW → 190MW
		<b>Total</b>	<b>300</b>	<b>140MW</b>	<b>140MW</b>	<b>200MW → 190MW</b>

If requested Hybrid capacity is exceeded by calculated values, dispatch will be scaled down on a pro rata basis (of calculated values) to honor requested capacity